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Amendment and Response

Page 5 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS**Remarks**

The Office Action mailed 7 May 2002 has been received and reviewed. Claims 62-65 having been canceled, claim 27 having been amended, and claims 66-75 having been added, the pending claims are claims 1-61 and 66-75. Reconsideration and withdrawal of the rejections are respectfully requested.

A cosmetic amendment has been made to claim 27 to delete the "or" phrases.

New claims 66-75 find support, for example, in originally filed claims 1, 32, 38, 42, and 50, and in the specification at, for example, page 9, lines 6-13, and page 32, line 4 to page 34, line 3.

Rejections under 35 U.S.C. §112, Second Paragraph, Rejection

The Examiner rejected claims 1-28, 32-36, 38-40, and 42-48 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Specifically, the Examiner alleged that it is unclear what Applicants intend by alkyl-Y-containing side chains with an average number of carbon atoms. Applicants respectfully disagree. Applicants respectfully submit that the language, "wherein the alkyl group of the alkyl-Y-containing side chain has a least 4 carbon atoms on average" (e.g., claim 1) is clear to one of skill in the art. The definitions of all the terms used in the claims (e.g., alkyl group, side chain) would be clear to one of skill in the art. It would be clear to one of skill in the art that polymers may have side chains. The claims define the recited side chains as alkyl-Y-containing side chains. Furthermore, the claims recite that the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average. Thus, Applicants submit that the claims clearly and distinctly describe Applicants' invention. In the event that this rejection under 35 U.S.C. §112, second paragraph, is maintained, Applicants respectfully request clarification as to the specific nature of the allegation as to how the recited language is unclear.

Amendment and Response

Page 6 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

The Examiner also alleged that claim 6 is indefinite because it is unclear what Applicants intend by skin capacitance and how one determines that this property has been reduced. Applicants respectfully disagree. Applicants respectfully submit that the language "a reduction in skin capacitance of greater than about 15%," when read in light of the specification, is clear to one of skill in the art. The specification provides a clear description of what is intended by a reduction in capacitance:

Briefly, skin is treated with an emulsion sample, dried, soaked in water for 12 minutes, blotted dry, and the capacitance measured with a Novameter instrument. The results are compared to the capacitance of an untreated (control) portion of the skin.

Specification, page 17, line 6-9. Furthermore, the specification also provides a detailed procedure for a test to measure a reduction in capacitance (e.g., page 29, line 28 to page 31, line 20). Moreover, Applicants have provided working examples illustrating greater than about 15% reduction in skin capacitance (e.g., page 45, line 4 to the bottom of page 46). Based on the above arguments, Applicants respectfully submit that the language of claim 6 is clear and definite.

The Examiner also alleged that claim 27 is indefinite because it "contains improper Markush language." Applicants respectfully submit that the Markush language used in claim 27 is definite and particularly points out and claims the subject matter that Applicants regard as the invention. Moreover, when using Markush language in claims, "[a]lternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims." M.P.E.P. § 2173.05(h)(I). Although "or" terminology is acceptable in Markush claims (see M.P.E.P. § 2173.05(h)(II)), Applicants have made a cosmetic amendment to claim 27 to delete the "or" language. In the event that the rejection of claim 27 under 35 U.S.C. § 112, second paragraph, for improper Markush language is maintained, Applicants respectfully request clarification as to the specific language on which the Examiner is basing the rejection.

Amendment and Response

Page 7 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

Based on the above remarks, Applicants respectfully request that the Examiner withdraw the rejections under 35 U.S.C. §112, second paragraph.

Rejections under 35 U.S.C. §103

The Examiner rejected claims 1-52 under 35 U.S.C. §103(a) as allegedly being unpatentable over European Patent No. 0 661 964 B1 (Schwartzmiller et al.) in view of European Patent No. 0 011 806 (Sonnabend). The Examiner also rejected claims 1-52 under 35 U.S.C. §103(a) as allegedly being unpatentable over European Patent No. 0 661 964 B1 (Schwartzmiller et al.) in view of U.S. Pat. No. 4,552,685 (Kernstock et al.).

"To establish a *prima facie* case of obviousness . . . there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." M.P.E.P. §706.02(j). Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness.

The disclosure of Schwartzmiller et al. relates to "a use of a composition which enhances the ability of pressure sensitive adhesives to adhere to treated mammalian skin" (page 2, lines 3-4). Although Schwartzmiller et al. disclose water-in-oil emulsions that include oil soluble acrylate polymers (e.g., page 2, lines 24-30), they do not disclose or suggest that the polymers include ethylene oxide-containing side chains.

Sonnabend discloses "a polymer useful as a pH responsive thickener for aqueous systems . . . comprising an aqueous emulsion copolymer" (e.g., page 2, lines 33-34). Sonnabend recites that "[t]he term 'liquid emulsion polymer' as applied to the new thickener of this specification means that the thickener is an emulsion polymer because the polymer was prepared by emulsion polymerization even though the polymer per se may be (and generally is) a solid at room temperature but is a 'liquid' emulsion polymer because it is in the form of a liquid solution or dispersion" (page 6, lines 9-12). The polymer includes "15-60 weight percent based on total monomers of at least one C₃-C₈ α,β -ethylenically unsaturated carboxylic acid monomer, and 1-30

Amendment and Response

Page 8 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

weight percent based on total monomers of at least one nonionic vinyl surfactant ester" that may include ethylene oxide units (e.g., page 2, lines 35-57). It is Applicants' Representative's understanding that Sonnabend fails to specifically disclose or suggest an emulsion (e.g., a water-in-oil emulsion or an oil-in-water emulsion).

Kernstock et al. discloses "thickened aqueous compositions . . . thickened with a synthetic, addition copolymer" (e.g., column 1, line 12-15). The "copolymeric thickener is a copolymer . . . of an α,β -ethylenically unsaturated carboxylic acid and a non-ionic α,β -ethylenically unsaturated surfactant ester" that may include ethylene oxide units (e.g., column 2, lines 31-34). Kernstock et al. prefer "those copolymers wherein the unsaturated carboxylic acid constitutes from about 8 to about 70 weight percent . . . based on the total weight of the alkyl ester and the acid" (e.g., column 5, lines 25-30). It is Applicants' Representative's understanding that Kernstock et al. fail to specifically disclose or suggest an emulsion (e.g., a water-in-oil emulsion or an oil-in-water emulsion).

"The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." M.P.E.P. §706.02(j). Sonnabend and Kernstock et al. disclose polymers that may include ethylene oxide-containing side chains; however there is no teaching or suggestion in either document of including polymers with ethylene oxide-containing side chains in emulsions (e.g., water-in-oil emulsions or oil-in-water emulsions). Thus, there is no motivation to combine Sonnabend or Kernstock et al., both of which do not teach emulsions (e.g., water-in-oil emulsions or oil-in-water emulsions), with Schwartzmiller et al.

Furthermore, with respect to preferred embodiments of Applicants' invention, the polymers taught by Sonnabend and Kernstock et al. include carboxylic acid groups. The teachings of the cited art provide no reasonable expectation of success for providing water-in-oil emulsions including polymers with ethylene oxide-containing side chains and carboxylic acid groups. Moreover, the present specification recites the following:

Amendment and Response

Page 9 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

It has also been the conventional belief that carboxylic acid functional monomers, such as acrylic acid, were important for preparing stable water-in-oil emulsions. There is a desire, however, to eliminate such acidic components in products used on skin, particularly because they can deactivate antimicrobial agents, for example. Furthermore, it has been found that the carboxylic acid functional polymers are typically not capable of stabilizing water-in-oil emulsions at low pH, e.g., pH of less than about 5 and especially less than about 4.5. Thus, there is a need for water-in-oil emulsions that are preferably stable over a broad range of pH (e.g., about 3 to about 12) and that preferably do not include acidic components.

(page 2, lines 20-29 of the present specification). Thus, there is no basis in the art of record to motivate one of skill in the art to combine Schwartzmiller et al. with Sonnabend or Kernstock et al. to arrive at Applicants' invention.

Moreover, for some embodiments of the present invention, Applicants recite water-in-oil emulsions and compositions, and methods of using the compositions, that may include use on skin (e.g., claims 6, 22, and 32-61). As described herein, the present specification recites the desirability of eliminating acidic components in products used on skin.

Also, for some embodiments of the present invention, Applicants recite water-in-oil emulsions and compositions, and methods of using the compositions, that include antimicrobial agents (e.g., claims 18-21, 38-41, and 56-58). As described herein, the present specification recites the desirability of eliminating acidic components in products including antimicrobial agents.

Furthermore, for some embodiments of the present invention, Applicants recite water-in-oil emulsions that are stable (e.g., claim 4). As described herein, the present specification recites that carboxylic acid functional polymers are typically not capable of stabilizing water-in-oil emulsions at low pH.

Finally, for some embodiments of the present invention, Applicants recite that "the vinyl polymer includes no more than about 0.1 wt-% copolymerized acidic monomers" (e.g., claim 29). Sonnabend requires 15-60 weight percent carboxylic acid monomer, and Kernstock et al. prefers about 8 to about 70 weight percent carboxylic acid monomer.

Amendment and Response

Page 10 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

For the reasons recited herein, Applicants submit that the cited art fails to provide a teaching or suggestion to make the combinations and/or modifications discussed herein with a reasonable expectation of success. Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. Applicants request that the Examiner reconsider and withdraw the rejections under 35 U.S.C. §103.

Unexpected Results

The Examiner alleged that it is Applicants' burden to demonstrate unexpected results. The Examiner cites M.P.E.P. §§716.02 and 716.02(a)-(g) as authority for this allegation. Applicants disagree with the Examiner's allegation.

Applicants respectfully point out that M.P.E.P. §716 is directed to "Affidavits or Declarations Traversing Rejections, 37 CFR 1.132." Applicants' Representatives respectfully submit that they have no burden to demonstrate unexpected results in declaration form or otherwise in view of the remarks presented herein above.

Restriction Requirement

The restricted Group II claims (e.g., claims 53-61) have been withdrawn from consideration by the Examiner. Upon a finding of allowable subject matter in the Group I claims, Applicants respectfully request that the Restriction Requirement be modified and/or the claims withdrawn from consideration be rejoined and examined with the Group I claims.

The M.P.E.P. provides that "if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined."

M.P.E.P. §821.04. Applicants elected the Group I product claims, which include moisturizing compositions (e.g., claims 32-37), tissue antiseptic compositions (e.g., claims 38-41), personal care compositions (e.g., claims 42-49), and transdermal drug delivery compositions (e.g., claims 50-52). The Group II claims, which have been withdrawn from consideration, are directed to

Amendment and Response

Page 11 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

methods of using the moisturizing compositions of claims 32, 36, and 37 (e.g., claims 53-55), methods of using the tissue antiseptic compositions of claims 38, 40, and 41 (e.g., claims 56-58), and methods of using the transdermal drug delivery compositions of claims 50-52 (e.g., claims 59-61). Thus, all the non-elected Group II method claims depend from and/or include all the limitations of the indicated product claims.

Applicants respectfully request that all the Group II claims be rejoined and examined. Applicants respectfully submit that the Group II claims are patentable over the art of record for reasons similar to those presented herein for the Group I claims. Applicants respectfully request that the pending Group II claims (e.g., claims 53-61) be passed on to allowance.

Information Disclosure Statement

Applicants are submitting herewith a Supplemental Information Disclosure Statement with a PTO-1449 form. The PTO-1449 form lists an ICI Companies Datasheet entitled "Arlacel P135 Polymeric Emulsifier," which was listed on a PTO-1449 form and submitted by Applicants with the Information Disclosure Statement mailed on February 27, 2002. The document is undated. Applicants hereby stipulate that the date of the document is prior to September 28, 2001, the filing date of the present application.

Since the document listed on the PTO-1449 form being submitted herewith is already of record in the present application, it is Applicants' Representatives belief that no fee is due. However, if a fee is required, the Examiner is authorized to charge the fee to the account indicated on the Supplemental Information Disclosure Statement.

Pursuant to the provisions of M.P.E.P. §609, Applicants further request that a copy of the 1449 forms (both those mailed on February 27, 2002 and the one submitted herewith), marked as being considered and initialed by the Examiner, be returned with the next Official Communication.

Amendment and Response

Page 12 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS**Allowable Subject Matter**

Applicants thank the Examiner for notification to the effect that the elected species of vinyl polymer would be allowable over the prior art if presented in an independent claim. Applicants have added new claims 66-70 that recite the elected species, "a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate."

The Examiner is reminded that Applicants traversed the election of species to the extent that it is understood that (a) the requirement will be withdrawn upon the finding of an allowable genus; and (b) any species withdrawn from consideration will be transferred to the elected subject matter unless it is found patentably distinct from the elected or allowed claims.

Applicants respectfully request that claims 66-70 be considered and passed on to allowance.

New Claims

In addition to newly added claims 66-70 previously discussed herein, Applicants have also added new claims 71-75, which recite "a vinyl polymer comprising the reaction product of monomers comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or both." Applicants respectfully submit that claims 71-75 are patentable over the art of record. Applicants respectfully request that the Examiner consider and pass newly added claims 71-75 on to allowance.

Amendment and Response

Page 13 of 13

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS**Summary**

It is respectfully submitted that all the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Deral T. MOSBEY et al.

By
Muetting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612) 305-1220
Facsimile: (612) 305-1228
Customer Number 26813

**26813**

PATENT TRADEMARK OFFICE

August 7, 2002
Date

By: [Signature]
Loren D. Albin
Reg. No. 37,763
Direct Dial (612)305-1225

CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 7th day of August, 2002, at 4:45 pm (Central Time).

By: [Signature]
Name: Loren D. Albin

**APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS
INCLUDING NOTATIONS TO INDICATE CHANGES MADE**

Serial No.: 09/966,511

Docket No.: 55837US002

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments have been marked in bold typeface.

In the Claims

For convenience, all pending claims are shown below.

1. A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH₃, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.
2. The water-in-oil emulsion of claim 1 wherein the vinyl polymer is soluble in the oil phase.
3. The water-in-oil emulsion of claim 1 wherein the ethylene oxide groups and alkyl-Y groups are in different side chains.
4. The water-in-oil emulsion of claim 1 which is stable.
5. The water-in-oil emulsion of claim 1 which is substantive.
6. The water-in-oil emulsion of claim 5 which provides a reduction in skin capacitance of greater than about 15%.

Amendment and Response - Appendix A

Page A-2

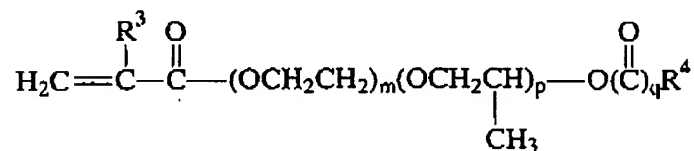
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Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

7. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains further include isopropylene oxide groups.
8. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains include at least four ethylene oxide groups.
9. The water-in-oil emulsion of claim 1 wherein the oil phase comprises one or more oils present in a total amount of at least about 20 wt-%, based on the total weight of the emulsion.
10. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains are derived from one or more monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers.
11. The water-in-oil emulsion of claim 10 wherein the monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers have the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R³ is H or CH₃; andR⁴ is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and

Amendment and Response - Appendix A

Page A-3

Applicant(s): Deral T. MOSBEY et al.

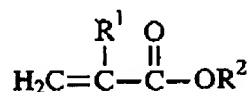
Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration.

12. The water-in-oil emulsion of claim 1 wherein the alkyl-Y-containing side chains are derived from one or more monoethylenically unsaturated alkyl (meth)acrylic monomers.
13. The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are selected from the group consisting of (meth)acrylate monomers, (meth)acrylamide monomers, and combinations thereof.
14. The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are alkyl (meth)acrylate monomers having the formula:



wherein:

R¹ is H or CH₃; and

R² is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms.

15. The water-in-oil emulsion of claim 1 further comprising a stabilizer.
16. The water-in-oil emulsion of claim 1 wherein the vinyl polymer is the reaction product of:

Amendment and Response - Appendix A

Page A-4

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

about 60 wt-% to about 90 wt-% of at least one monoethylenically
unsaturated alkyl (meth)acrylic monomer; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically
unsaturated poly(alkylene oxide) (meth)acrylic monomer.

17. The water-in-oil emulsion of claim 1 which has compatibility with at least one bioactive agent.
18. The water-in-oil emulsion of claim 17 wherein the bioactive agent is an antimicrobial.
19. The water-in-oil emulsion of claim 18 wherein the antimicrobial is chlorhexidine gluconate.
20. The water-in-oil emulsion of claim 18 wherein the antimicrobial is an iodophor.
21. The water-in-oil emulsion of claim 20 wherein the iodophor is povidone-iodine.
22. The water-in-oil emulsion of claim 1 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.
23. The water-in-oil emulsion of claim 1 wherein the vinyl polymer has a calculated HLB of more than about 1 and less than about 10.

Amendment and Response - Appendix A

Page A-5

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

24. The water-in-oil emulsion of claim 1 comprising at least about 0.25 wt-% of the vinyl polymer, based on the total weight of the emulsion.
25. The water-in-oil emulsion of claim 1 comprising no more than about 10 wt-% of the vinyl polymer, based on the total weight of the emulsion.
26. The water-in-oil emulsion of claim 1 further comprising a humectant.
27. (Amended) The water-in-oil emulsion of claim 1 further comprising one or more additives selected from the group consisting of humectants, surfactants, conditioners, sunscreen agents, insect repellents, vitamins, herbal extracts, antiperspirant [or]agents, deodorant agents, skin bleaching agents, skin coloring agents, hair bleaching agents, hair coloring agents, depilating agents, antidandruff agents, antiacne agents, astringents, tensors, skin toning agents, glitter, pigments, dyes, bleaches, perfumes, fragrances, preservatives, antioxidants, waxes, film-forming polymers, propellants, buffers, organic suspending agents, inorganic suspending agents, organic thickening agents, inorganic thickening agents, plasticizers, herbal extracts, flavoring agents, corn removers, callus removers, [or] wart removers, and combinations thereof.
28. A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.

Amendment and Response - Appendix A

Page A-6

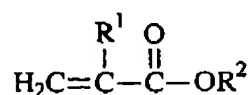
Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

29. A water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer comprising the reaction product of monomers comprising:
 about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

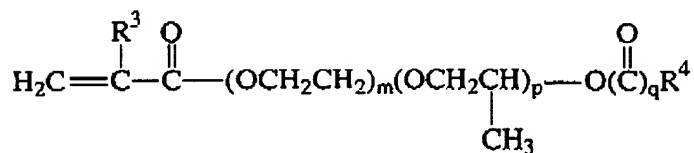


wherein:

R¹ is H or CH₃; and

R² is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R³ is H or CH₃; and

R⁴ is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and

Amendment and Response - Appendix A

Page A-7

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration;

with the proviso that the vinyl polymer includes no more than about 0.1 wt-% copolymerized acidic monomers.

30. The water-in-oil emulsion of claim 29 which is stable.
31. The water-in-oil emulsion of claim 29 which is substantive.
32. A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH₃, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.
33. The moisturizing composition of claim 32 which is stable.
34. The moisturizing composition of claim 32 which is substantive.
35. The moisturizing composition of claim 32 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.
36. A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-

Amendment and Response - Appendix A

Page A-8

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

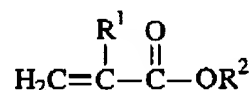
Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.

37. A moisturizing composition comprising a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer comprising the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

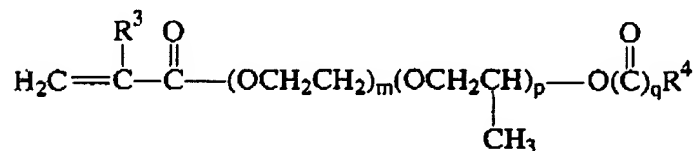


wherein:

R^1 is H or CH_3 ; and

R^2 is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

Amendment and Response - Appendix A

Page A-9

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R³ is H or CH₃; and

R⁴ is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration.

38. A tissue antiseptic composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH₃, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; a water phase; and an antimicrobial.
39. The tissue antiseptic composition of claim 38 which is stable.
40. A tissue antiseptic composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; a water phase; and an antimicrobial.

Amendment and Response - Appendix A

Page A-10

Applicant(s): Derald T. MOSBEY et al.

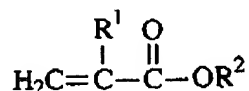
Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

41. A tissue antiseptic composition comprising: an oil phase; a water phase; an antimicrobial; and a vinyl polymer comprising the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

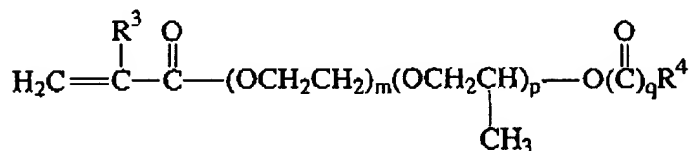


wherein:

R^1 is H or CH_3 ; and

R^2 is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R^3 is H or CH_3 ; and

R^4 is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and the ethylene oxide groups (the "m" groups) are arranged in a reversed,

Amendment and Response - Appendix A

Page A-11

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

alternating, random, or block configuration.

42. A personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH₃, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.
43. The personal care composition of claim 42 which is a hair care composition.
44. The personal care composition of claim 43 wherein the hair care composition is a styling agent, shampoo, dye, conditioner, rinse, antidandruff preparation, or mask for the hair.
45. The personal care composition of claim 42 which is in the form of an insect repellant, shaving product, hand lotion, body lotion, gel, cream, sunless tanning composition, sunscreen, cleanser, toner, astringent, freshener, mask for skin, nail polish, nail strengthener, underarm deodorant, antiperspirant, bath powder, talc, bath oil, bubble bath, makeup, cologne, perfume, composition for cushioning sores, or hair removal composition.
46. The personal care composition of claim 42 which is a makeup.
47. The personal care composition of claim 46 wherein the makeup is a lipstick, eye shadow, eye liner, mascara, rouge, face powder, or foundation.

Amendment and Response - Appendix A

Page A-12

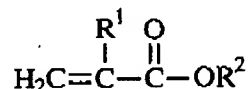
Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

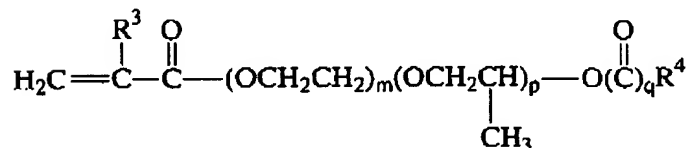
48. A personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase.
49. A personal care composition comprising a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer comprising the reaction product of monomers comprising:
- about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:



wherein:

R¹ is H or CH₃; andR² is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

Amendment and Response - Appendix A

Page A-13

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R³ is H or CH₃; and

R⁴ is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration.

50. A transdermal drug delivery composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH₃, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; a water phase; and a pharmaceutical agent.
51. A transdermal drug delivery composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; a water phase; and a pharmaceutical agent.
52. A transdermal drug delivery composition comprising a water-in-oil emulsion comprising: an oil phase; a water phase; a pharmaceutical agent; and a vinyl polymer comprising the reaction product of monomers comprising:

Amendment and Response - Appendix A

Page A-14

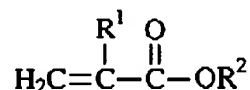
Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

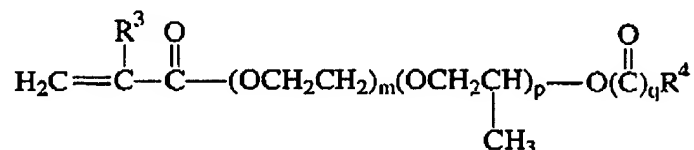


wherein:

R^1 is H or CH_3 ; and

R^2 is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R^3 is H or CH_3 ; and

R^4 is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the "p" groups) and the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration.

Amendment and Response - Appendix A

Page A-15

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

53. A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 32 to mammalian skin.
54. A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 36 to mammalian skin.
55. A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 37 to mammalian skin.
56. A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 38 to mammalian tissue.
57. A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 40 to mammalian tissue.
58. A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 41 to mammalian tissue.
59. A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 50 to mammalian skin.
60. A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 51 to mammalian skin.
61. A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 52 to mammalian skin.

Amendment and Response - Appendix A

Page A-16

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS**66. (New) A water-in-oil emulsion comprising:**

a vinyl polymer comprising the reaction product of monomers
comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide
methacrylate;
an oil phase; and
a water phase.

67. (New) A moisturizing composition comprising a water-in-oil emulsion
comprising:

a vinyl polymer comprising the reaction product of monomers
comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide
methacrylate;
an oil phase; and
a water phase.

68. (New) A tissue antiseptic composition comprising a water-in-oil emulsion
comprising:

a vinyl polymer comprising the reaction product of monomers
comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide
methacrylate;
an oil phase;
a water phase; and
an antimicrobial.

Amendment and Response - Appendix A

Page A-17

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

69. (New) A personal care composition comprising a water-in-oil emulsion comprising:
a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
an oil phase; and
a water phase.
70. (New) A transdermal drug delivery composition comprising a water-in-oil emulsion comprising:
a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
an oil phase;
a water phase; and
a pharmaceutical agent.
71. (New) A water-in-oil emulsion comprising:
a vinyl polymer comprising the reaction product of monomers comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or both;
an oil phase; and
a water phase.
72. (New) A moisturizing composition comprising a water-in-oil emulsion comprising:

Amendment and Response - Appendix A

Page A-18

Applicant(s): Deral T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

a vinyl polymer comprising the reaction product of monomers
comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-
ethylhexyl acrylate, or both;
an oil phase; and
a water phase.

73. (New) A tissue antiseptic composition comprising a water-in-oil emulsion
comprising:

a vinyl polymer comprising the reaction product of monomers
comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-
ethylhexyl acrylate, or both;
an oil phase;
a water phase; and
an antimicrobial.

74. (New) A personal care composition comprising a water-in-oil emulsion
comprising:

a vinyl polymer comprising the reaction product of monomers
comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-
ethylhexyl acrylate, or both;
an oil phase; and
a water phase.

75. (New) A transdermal drug delivery composition comprising a water-in-oil
emulsion comprising:

Amendment and Response - Appendix A

Page A-19

Applicant(s): Dural T. MOSBEY et al.

Serial No.: 09/966,511

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

a vinyl polymer comprising the reaction product of monomers
comprising: (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-
ethylhexyl acrylate, or both;

an oil phase;

a water phase; and

a pharmaceutical agent.